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Part of ORR Proj. 1
(IP-353A)

ANTI FRICTION BEARINGS IN USE IN SOME SOVIET EQUIPMENT

Central Intelligence Agency
Office of Research and Reports
Industrial Division

Weapons and Ammunition Branch

[redacted] 25X1A

3 November 1953

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INTRODUCTION

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Purpose

The purpose of this report is to make available a list of the types and sizes of the antifriction bearings used in certain Soviet equipment and to equate the Soviet types and sizes into western standard types and sizes such as SKF, Fafnir, RIV, etc. The criteria of selecting the Soviet equipment is whether or not the equipment has military value or can support a war economy.

Source of Material

Ideally, the list should encompass all the weapons, vehicles, machine tools that use anti-friction bearings and are in accordance with the above criteria, but it is necessarily limited at this time by the availability of information. The present list is derived from translations of open Soviet literature and from actual physical examination of a few sample pieces of equipment. Where possible each bearing has been checked in a Soviet anti-friction bearing catalogue.

An extension of this list will have to wait upon further analysis of some pieces of equipment now in our hands and by examining [illegible] other western equipment similar to known pieces of Soviet equipment and deriving the types and sizes of strategic anti friction bearings by inference. Steps have already been taken to derive in this manner the bearings for [illegible] artillery pieces.

Explanation of Tables

Each table is headed by the name and model of the piece of equipment and a short description.

In the original data the description of the bearing was frequently inadequate and it has been supplemented from the Soviet catalogue.

The Soviet bearing number was stamped on each bearing in those cases where the equipment was physically examined. In each case it is in accordance with the new Soviet numbering system which was established in 1950.

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[redacted]

Dimensions are in millimeters unless otherwise noted.

Quantities listed, where known, are per piece of equipment.

Where information is lacking, or where it was not possible to find the western equivalent of a Soviet bearing, the space has been left blank.

25X1A

Coordination

25X1A [redacted]

[redacted] equated the Soviet bearings to SKF number; and

25X1A [redacted] of the Industrial Division, CIA, provided the material on the machine tools.

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TABLE OF CONTENTS

		Page
Introduction		1
Table I	T34/85 Tank	1
Table II	M10 Aircraft Engine	4
Table III	S 80 Tractor	5
Table IV	D 54 Tractor	7
Table V	S 60 and S 65 Tractors	9
Table VI	SKhTZ - NATI Tractor	11
Table VII	ZIS 5 Truck	16
Table VIII	ZIS 150 Truck	17
Table IX	ZIS 151 Truck	18
Table X	GAZ 51 Truck	20
Table XI	GAZ 63 Truck	22
Table XII	GAZ M67 Jeep	23
Table XIII	YAZ 200 and MAZ 205 Trucks	24
Table XIV	M72 Motorcycle	27
Table XV	12" lathe, Model 1616	28
Table XVI	16" lathe, Model 1A62	30
Table XVII	Turret lathe, Model 1336M	31
Table XVIII	Excavator, TE 2	32
Sources		34

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

TABLE I

SOVIET TANK

T 34/85 tank manufactured in 1945

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Ball thrust	Crankshaft thrust	100	135	25	1	
Ball	Oil pump drive idler	17	47	14	1	
Double ball,self align	Main access drive shaft, lower end	35	72	17	1	
Roller	Main clutch	110	174	30	1	
Ball	Main clutch				1	U.S. manufactured
Ball thrust	Steering clutch	110	174	30	2	
Double ball,self align	Steering clutch	60	150	35	2	
Ball	Fuel injector pump camshaft	25	52	15	2	
Ball	Water pump	17	47	14	1	
Ball	Generator,drive end	25	62	17	1	
Ball	Generator,commut end	25	52	15	1	
Ball	Starter,commut end	25	52	15	1	
Double ball,self align	Starter,drive end	45	85	19	2	
Roller, tapered	Transmission pinion	90	150	26	1	
Ball thrust	Transmission pinion	100	170	55	1	

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TABLE 1

SOVIET TANK (CONTINUED)

25X1B

25X1B

OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Roller	Transmission pinion	95	150	41	1	
Roller	Transm.drive cross shaft	60	160	64	1	
Roller	Transm.driven cross shaft	80	150	64	1	
Roller	Transm.driven cross shaft	[illegible]	160	30	2	
Roller	Transm.drive cross shaft	[illegible]	150	35	2	
Roller	Transm.reverse idler gear	52	90	70	2	
Roller	Final drive	[illegible]	[illegible]	53	2	
Roller	Final drive	[illegible]	[illegible]	48	2	
Roller	Final drive	[illegible]	[illegible]	[illegible]	2	
Roller	Final drive pinion	[illegible]	140	57	2	
Ball	Track idler	[illegible]	[illegible]	40	2	
Roller	Track [illegible]	[illegible]	150	34	2	
Ball	Bogie wheel	[illegible]	170	[illegible]	20	
Ball	[illegible]	[illegible]	[illegible]	[illegible]	1	
Ball	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

[redacted]

[redacted]

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TABLE 1

SOVIET TANK (CONTINUED)

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Ball	Turret rotat mechsm. worm shaft, drive end	25	62	[illegible]	1	
Ball	Turret rotat. mechsm. worm shaft, pilot end	20	52	15	1	
Ball	Turret rotat mechsm. spur gear shaft	20	52	15	1	
Ball	Ventilating fan, drive end	12	32	10	1	
[illegible]	Vent. fan, comm. end	15	35	8	1	
[illegible]	Tachometer brgs.				5	
[illegible]	Governor thrust arm				1	
[illegible]	Fuel pump tappet assy's.				12	
[illegible]	Governor				1	
[illegible]	Turret ring				1	
[illegible]	Commander's hatch				1	
[illegible]	Clutch release mechsm				9	

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TABLE II

MIG AIRCRAFT ENGINE

MIG 15

25X1B

25X1B

TYPE OF BEARING	[redacted]	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS* BORE	O.D.	WIDTH	QUANTITY	REMARKS	[redacted]
Ball, caged		Accessory case	0.98	2.85	.4724	2		
Ball, "		" "	1.18	2.44	.629	1		
Ball, shielded		" "	1.25	2.46	3/8	5		
Ball, "		" "	1.37	2.44	.551	5		
Ball, caged		Main bearings	4	5 1/4	1 1/16	1		
Roller, caged, no outer race		" "		4	15/16	1		
Roller, caged, no outer race		" "		4 3/4	3/4	1		

* Inches

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CON.

TABLE III

S-80 TRACTOR (CATERPILLAR)

Most powerful Soviet tractor - 80 horsepower
Copy of U.S. Caterpillar Co.'s D7 Tractor.

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	BORE	O.D.	WIDTH	QUANTITY
Ball	Gov. of diesel engine	17	40	12	1
Ball	Start motor clutch sleeve shaft and reducing gear	40	80	18	2
Roller, cyl, spiral, rollers single split cut ring	Start motor crankshaft	20	34	25	1
Ball	Start motor crankshaft	50	90	20	1
Ball	Start motor crankshaft	55	100	21	1
Roller, spiral rings, no inner ring	Main friction clutch	68	100	34	1
Roller, tapered	Side friction clutch	60	130	34	2
Ball	Side friction clutch	75	130	25	2
Ball	Transm. up shaft and crankshaft	65	120	23	1
Roller, graphitised steel grooved for lock ring pressed cage.	Transm. up shaft and crankshaft	50	110	27	2
Roller, graphitised steel two flanges on cut ring, no outer ring, pressed cage.	Transm., idler gear shift	40	70	17	2

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TABLE III (CONTINUED)

S-80 TRACTOR (CATERPILLAR)

Most powerful Soviet tractor - 80 horsepower.
Copy of U.S. Caterpillar Col's D7 Tractor.

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Roller, groove for lock ring, pressed cage	Transm. lower shaft	75	160	37		
Ball	Transm, crankshaft & lower shaft	50	110	27	2	
Ball	Diesel fan	30	62	16	2	
Roller, one flange on in. ring, solid brass cage	Gear	60	130	31	6	
Roller, as above	Gear	60	130	31	6	
Roller, as above	Side reduct. gear	70	150	35	2	
Roller, tapered, lock flange on cut ring	Side reduct gear	140	230	58	2	
Roller, tapered, not std.	Side reduct gear	135	190	49	2	
Ball, thrust	Start motor gov	17	30	9	1	
Needle, one pressed outer ring	Diesel gov	15	26	12	2	
Ball, thrust	Diesel gov	25	48	15.5	1	

25X1B

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TABLE 1

DT 5½ TRACTOR

New diesel caterpillar general purpose tractor based upon Lorraine SKMTZ-NATI tractor design. 5½ horsepower

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	CAPACITY	REMARKS
Ball	Ventil shaft gear, axle of tension pulley, water pump, drive shaft of reducer of starting engine	25	52	15		
Ball, one shield	Crankshaft axles of tension pulley of water pump and ventilator	30	62	16		
Ball	Water pump shaft	30	72	19		
Roller, spiral rollers	Ventilator pulley	35	80	21		
Ball	Main coupling shaft and reverse shaft, and power take-off	40	110	27		
Ball, angular contact	Main coupling clutch	63	102	27		
Ball, high flange on inner ring	Crankshaft of start engine	20	47	14		
Ball	Semi-axle of crankshaft of start engine	15	35	11		
Ball, double	Same	25	62	17		
Ball	Shaft of Bendix of reducer of starting engine	40	80	18		
Ball	Reducer of start engine	45	85	19		

25X1B

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TABLE IV CONTINUED

DT 54 TRACTOR

New diesel caterpillar general purpose tractor based upon kerosene SKhTZ-NATI tractor design. 54 horsepower

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Ball, double, spheric	Reducer of start engine	20	47	14		
Roller, tapered	Supporting rolls	45	100	38.5		
Roller, tapered	Steer wheel hub	65	120	33		
Roller, tapered	Steer wheel hub	45	100	38.5		
Ball	of supporting rolls	35	100	25		
Ball	of intermed shaft NOT	40	90	23		
Ball, groove for lock ring	on outer ring of primary shaft K-P	40	110	27		
Ball, groove for lock ring	Revers shaft and [illegible]	45	120	29		
Ball, cylin, brass cage	[illegible]	65	140	51		
Ball, spherical	[illegible]	30	110	60		
Ball, angul. contact, non-detach.	[illegible]	50	140	26.5		
Roller, tapered	[illegible]	50	110	44		
Roller, cylindrical	[illegible]	50	130	35		
Roller, tapered brass cage	[illegible]	[illegible]	[illegible]	44		

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S-55 and S-65 [illegible] (M LIFELAND)

No longer produced. Were prime movers used in World War II. Still in use on requirements, spare parts. 48-50 H.P. drawbar horsepower. S-55 uses kerosene fuel and S-65 is diesel powered.

25X1B

TYPE OF BEARING	[redacted]	DIMENSIONS I.D.	O.D.	WIDTH	QUANTITY	REMARKS
Ball, thrust						
Ball, thrust, special, protruding free ring						
Ball, double, angular contact, 1 piece outer ring, 2 inner rings						
Roller, tapered	Upper shaft [illegible]	[illegible]	110	58.74		
Roller, tapered, not std.	Lower shaft [illegible]	[illegible]	170	62		
Roller, tapered, not std.	[illegible]	[illegible]	120	46		S-60 only
Roller, tapered; not std.	Shaft of bevel gear	[illegible]	115	78		
Roller, tapered, not std.	Transm. gear	[illegible]	150	50		
Roller, spiral rollers	[illegible]	[illegible]	170	62		
Roller, spiral rollers, inner ring w/ increased neigh	Vent fan	50	72	30		
Roller, spiral rollers, w/ single slit outer ring	Upper shaft, rear	65	[illegible]	44.55		
	Low. roller of track	55	100	106		

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TABLE V
(Continued)

S-60 AND S-65 TRACTORS (CATERPILLAR)

No longer produced. Were prime movers used in World War II. Still in use and requiring spare parts. 46-50 H.P. drawbar horsepower. S-60 used liquid fuel and S-65 is diesel powered.

25X1B

[redacted]

BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
[illegible] cylindrical rollers, w/ [illegible] outer ring					
Tightening wheel ?	65	120	100		
Generator	15	35	11		
Diesel gov.	17	40	12		C-65 only
Generator	20	47	14		
Clutch coupling and shaft of starter	40	80	18		C-65 only
[illegible] shaft, [illegible] rollers, w/ [illegible] outer ring					
Clutch coupling	19.695	34	25		C65 only
Crankshaft of starter	50	90	20		C-65 only
Crankshaft of starter	55	100	21		

[illegible] data and [illegible] drawing added from Gov. catalogues.

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TABLE VI

SKETCH—MANUFACTURING DATA

52 Horsepower kerosene caterpillar. Prototype of new Soviet DT-54 diesel tractor.

25X1B

TYPE OF BEARING	BEARING OR PLATFORM IN DRAWING	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Ball, lock ring on outer ring	[redacted]	Drive shaft, front	110	27		
Ball		Universal joint	110	27		
Ball, lock ring on outer ring		Crankshaft, front	120	29		
Roller, cylin, non-std.		Crankshaft, rear	140	51		
Ball		Shaft of reverse gear	120	29		25X1B
Ball, angular contact, non-detachable		[illegible]	140	20.5		[redacted]
Roller, tapered		Bevel gear [illegible]	1[illegible]	34		
Ball		[illegible]		27		
Ball, one shield		[illegible]		22		
Roller, tapered		[illegible]	140	43		
Ball		[illegible]				

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TABLE VI
(Continued)

SKhTZ--NAIT TRACTOR 1TA

52 Horsepower kerosene caterpillar. Prototype of new Soviet DT-54 diesel tractor.

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	COMMENTS
Ball, groove for lock, ring on outer ring	Small final drive gear, universal	60	150	35	
Ball, thrust	Oil pump shaft	20	35	10	
Roller, tapered	Support bearing?	45	100	38.5	
Roller, special rollers	Support?				
Ball	Support?	35	80	21	
Roller, tapered	Steering wheel, inner	55	120	33	
Roller, tapered	Steering wheel, outer	45	100	38.5	
Ball, double, spherical	Power take-off	25	52	15	
Ball, double	Power take-off, rear	40	90	23	
Ball, angular contact, high flange on outer ring	Main coupling, middle	63	102	27	
Ball, angular contact, high flange on outer ring	Governor gear	25	52	15	
Ball, angular contact	Governor shaft, rear	12	32	7	
Ball	Ventil fan & water pump	40	90	18	
Ball	Axle of tension pulley	25	62	17	
Ball	Ventil and water pump	40	90	23	

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25X1B

[redacted]

TYPE OF BEARING	[illegible] & POSITION IN EQUIPMENT	DIMENSIONS (mm)			CAPACITY	REMARKS
Ball	Driver, [illegible]	[illegible]	[illegible]	45		
Ball	Driver, rear	[illegible]	[illegible]	35		
Ball	Driver	[illegible]	[illegible]	35		
Ball, thrust	Starting, cranking [illegible]	[illegible]	65	14		
Ball, angular contact	Armature rotor, front	[illegible]	55	8		
Ball, angular contact	Armature rotor, rear	[illegible]	40	10		
Ball	Generator	[illegible]	40	12		

[illegible] Original data did not contain dimens; added from Sov. catalogue.

13

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XIB 5

3 ton 2 axle truck, first produced in 1936

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	BORE	O.D.	WIDTH	QUANTITY
Ball, thrust, in housing	Clutch coupling	55	90	23	
Ball	Shaft coupling	25	52	15	
Roller thrust, tapered, in housing	Front axle king pin	26	50	17	
Ball	Drive gear of reducer, rear bridge	50	110	27	
Ball	Diff.	70	125	24	
Roller, tapered	Ventilator	20	47	15.5	
Roller, tapered	Gear box	40	80	20	
Roller, tapered	Reducer of rear bridge	45	100	38.5	
Roller, tapered, non-std	Rear wheel	70	120	45	
Roller, tapered	Front wheel, outer	30	72	29	
Roller, tapered, non-std	Front wheel, inner	45	90	38.5	
Ball, thrust w/one ring	Worm of steer col.	46.5	60.3	8.5	
Roller, cyl, w/o rings	Main shaft transmission	30	42	44.1	
Ball	Intern shaft of transm.	40	90	23	

25X1B

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TABLE VII CONTINUED

ZIS 5

3 ton 2 axle truck, first produced in 1936

25X1B

BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Drive gear of transm box	55	100	32		
Reducer of rear bridge	45	100	32		
Generator	20	47	14		
Intermed shaft	35	80	21		

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TABLE VIII

ZIS 150 TRUCK

Std. 3 ton truck, equivalent to ZIS 51 but heavier.
Currently involved in development to increase payload

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	BORE	O.D.	WIDTH	QUANTITY	REMARKS
Ball, one shield	Fr. Transm. primary shaft	25	52	15	?	
25X1B						
Ball, up groove for lock ring, solid brass cage	Transm. primary shaft	55	90	23		
Roller, splin. short rollers	Fr. transm c'shaft	35	80	21		
Ball, up groove for lock ring without rings	Rr. transm. c'shaft	35	100	25		
Roller, Long rollers	Transm. Main shaft pilot brg. and reverse gear	30	42	44.1		
Ball, up groove for lock ring	Transm. Main shaft rear	55	120	29		
Ball, angul. con. in housing, cupped outer ring	Clutch release	55	90	23		
Needle, no inner ring	Univ. joint	25.15	39	28		
Roller, tapered, superfin.	Diff. axle drive level pin and spur gear	50	110	42.5		
Roller, tapered, superfin	Diff axle drive level pinion gear	65	140	51.5		

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TABLE VIII CONTINUED

KIB 150 TRUCK

Std. 3 ton truck, equivalent to KIB 51 but heavier.
Currently involved in development to increase payload.

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Roller, tapered super fin.	Diff	75	130	27.5		
Roller, tapered no-std.	Hub, rear wheel	75	135	44.5		
Roller, tapered	Hub, fr. wheel, outer	40	90	35.5		
Roller, tapered	Hub, fr. wheel, inner	55	120	46		
Roller, tapered no inner ring	Steer gear worm	46.673	72	14	2	
Ball, angular no cage	Steer gear	28	42	26		
Needles	Steer gear shaft rollers					Replace 25 x 3 dia
Ball, up groove for lock ring	Compressor cr.shaft, fr.	35	72	17		
Ball	Compr. cr. shaft, rear	35	72	17		
Ball, felt seal on one side	Water pump shaft, fr.	17	47	15.5		
Ball, felt ring on one side	Water pump shaft, rear	17	40	14		

25X1B

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TABLE IX

ZIS 151 TRUCK

Military version of ZIS 150 3 ton truck. Has 3 axle drive. Resembles US Army 2½ ton 6x6 (GMC or Studebaker)

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Roller, taper, w/cup large angle cone	Transfer Case	45	100	32	3	
Roller, taper	Transfer Case	40	80	33.3 ?	5	
Roller, taper	Transfer Case	40	90	25.5	2	
Ball w/locking groove and ring	Transmission	55	120	29	1	
Ball	Transmissio	55	120	23	1	
Ball	Transmission	35	100	25	1	
Roller w/cup Mt. Solid cage	Transm. Main Shaft Brg	35	80	21	1	
Roller	Mainshaft & Idler	30	41.3	43.7	3	
Ball? Roller?	Clutch Release	89?	54?		1	
Needle	Univ. Joints	24.6	44.5 & 28.6	19.8	40	
Ball, felt seal one side	Water Pump Impeller Shaft outer Brg	17	47	17	1	
Ball,	Water Pump Impeller Shaft inner Brg	17	40	14	1	

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Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

TABLE IX CONTINUED

ZIS 151 TRUCK

Military version of ZIS 150 3 ton truck. Has 3 axle drive. Resembles US Army 2½ ton 6x6 (GMC or Studebaker)

25X1B

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Roller	Taper w/cups					
Roller	No inner ring					
Roller	Taper w/cups					
		Air compressor crankshaft main Brg.	35	72	17	2
		Steering Knuckle Brg.	30	72	24.5	4
		Pinion Brg, inner Drive	31.8	62	27	3
		Pinion Shaft, inner Drive	45	100	32	6
		Wheel Brg.	65	102.4		6
		Diff. carrier	65	102.4		6
		Wheel Brgs	70	125	33.5	6
		Outside Trunnion Shaft	40	80	25	2
		Inside Trunnion Shaft	55	100	20	2

25X1B 25X1B

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Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

TABLE X

GAZ 51

Std ½ ton truck 4 wheel, single drive first produced in 1946

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	OUTSIDE	WIDTH	QUANTITY	REMARKS
Ball, one shield	Transmission main drive gear, guide end	1	[illegible]	12	1	
Ball	Trans. main drive gear	[illegible]	[illegible]	19	1	
Roller, long rollers, w/o rings	Trans. main shaft pilot guide end	20.612	33.325	36.7	1	.8115" x 1.312" x 1.4[illegible]
Ball	Transm. main shaft brg	35	80	21	1	
Roller, long rollers, w/o rings	Trans. c'shaft gear brg	25.40	41.288 41.99(2)	60.4	2	
Ball thrust, in housing, cup shaped outer	Clutch release sleeve brg	52.387	84.55	20.74	1	
Needle, ring, no inner ring	Univ joint, needle brg assm'd	22	35	20.5	12	
Ball, large angle cone, not std.	C'shaft support brg	40	80	18	1	
Roller, tapered, no inner ring, not std.	R. axle drive pinion brg	45	100	29 32(2)	2	
Roller, cylin, short rollers	R. axle drive pinion rear	31.766	62.024	26.975	?	
Roller, tapered	Differ case brg	65	110	30	?	(2.6" x 4.4" x .6) 2.685 x [illegible] x 1.[illegible]
Roller, tapered	Rear wheel hub, inner	70	125	31 33.5(2)	2	25X1B [illegible]

20

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

CONFIDENTIAL

TABLE X (CONT.)

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Ball thrust,in housing	Steer knuckle pivot brg	[illegible]	53	16	2	
Roller, tapered	Fr. wheel hub, inner	40	90	33 35.5(2)	2	
Roller, superfinish, tapered	Fr. wheel hub, outer	25	62	24 25.5(2)	2	25X1B [redacted]
Rollers,tapered,no rings	Steering worm(upper)	[illegible]6	66.7	12	1	
Roller,tapered,outer rings alone	Steering worm(upper)	[illegible]d	68	19.5	1	
[illegible],ball,thrust(pot) [illegible]ball bearing(std.)	Steer gear shaft.end	25	52	15	1	
[illegible]ring rollers,no rings	Steer gear shaft,upper	20	30	18 18.3(2)	1	
Ball,double,two seals	Water pump shaft	16	30(2)	40(2)	1	
Roller, tapered	Spider pinion housing	70 65	120 110	45 30.5	2	2.7559 x 4.3307 x 1.7716
Needles alone	Needle brg of tension lever of clutch pressure disk	--	1.6	9	57	
Roller	Roller brg as above	--	5.5	9	3	
Ball thrust in housing special	Clutch release sleeve brg	52.38	84.5	20.7	1	
Roller,nylin,no cage, two adapters	End of axle drive pinion	25	62	24	1	
Ball,double,outer ring, angul.contract,spec.	Steer gear shaft	12.75	47.6	24	1	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	
		17	40	12	1	

For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

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CONFIDENTIAL

TABLE XI

GAZ 63 TRUCK

Military version of GAZ 51. 2½ ton truck.
Has a 2-axle drive, higher ground clearance

25X1B

[redacted]

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENTIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Roller	Steering col. sector col.	26	51		1	
Roller thrust	Bottom brg., steering col.	48	68		1	
Roller thrust	Upper brg., steering col.	48	66		1	
Needles w/o rings	Lower sector col.	20	30	18	1	
Ball	Brg. bushing w/pipe (water pump)	15	27		1?	
Ball	Main shaft drive gear brg.	45	100	25	1	
Ball	Idler shaft brg.	35	80	21	1	
Roller, tapered	Idler shaft brg.	40	80	18	1	
Needles w/o rings	Input & output shaft brgs.	35	60	23	4 sets	
Needles " "	Front main shaft brg.	20.612	33.325	36.7	1	
Ball	Cluster gear shaft brg.	19.1	28.6	43	2	
Ball	Front transmission brg.	40	80	18	1	
Needle, w/o inner ring, cup shaped outer ring	Rear transmission brg.	35	80	21	1	
Ball, single thrust	Univ. Joint brg.	22	35	20.5	16	
	Clutch release throw out brg.	52.4	84.6	20.7	1	

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

CONFIDENTIAL

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Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

TABLE X (CONTINUED)

GAZ 63 TRUCK

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS CONE	O.D. Cup	WIDTH	QUANTITY	REMARKS
Roller	Diff. carrier brgs.	65	109.5		2	
Roller, tapered, large angle cone, w/cup	Pinion shaft brg.	45	100	32	2	
Rollers w/2 adapters, w/o flanges on outer ring, w/o cage	Pinion shaft end brg	25	62	24	1	
Roller, tapered	Rear wheel inner brg	75	125	33.5	2 sets	
Roller	Rear wheel outer brg.	65	109.5		2 sets	
[redacted] w/o inner cones, [redacted] outer rings	Universal joint brgs.	22	35	20.5	8	
[redacted]	Front diff. carrier brgs.	65	109.5		2 sets	
[redacted]	Inside front wheel brg	70	125	33.5	2 sets	
Roller	Outside front wheel brg	65	109.5		2 sets	
Roller, tapered, large angle cone w/cup	Upper diff. pinion brg	45	100	32	2	
Roller, tapered	Steer knuckle brg.	30	72	24.5	4	
Roller, w/o flanges outer rings w/2 adapters w/o cage	Pinion shaft end brg	25	62	24	1	

23

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Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

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XII

B-67

Soviet Army Jeep ... to US jeep-4 wheel ...

25X1B

TYPE OF BEARING	[redacted]					REMARKS
Ball, one shield		Drive axle at shaft [illegible]			12	
Ball, groove for lock ring on outer ring		Distributor				
Ball		Transm. box, [illegible] wheel inner				
Ball, double, thrust, 1 piece outer ring, 2 inner rings		Transm. box		80	35	
Ball, thrust, in housing		Cluton throw-out		3.58	20.74	
Roller, tapered		Transm. box		72	31	
Roller, tapered, not std.		Transm. box	30.2	73.5	30.5	1.188976 x 2.500 x [illegible]
Roller, tapered		Front & rear drive		76	20.5	
Roller, tapered, double		Front & rear drive				
Roller		Transm. box	20.0	33.3	35.7	
Roller, w/o rings		Transm. box	25.4	41.275	30.48	Solid roller assembly
Roller, w/o rings		Steer sp wheel	25	30	17	Solid roller assembly
Roller, w/o rings		Drive shaft, rear	37.71	42.825	44.1	Solid roller assembly
Roller		Back wheels	32.4	41.25	43.5	Roller assembly.

25X1B [redacted]

24

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

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Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

TABLE XII (Continued)

[illegible]

Soviet army jeep, very similar to US jeep-4 wheel drive.

25X1B

[redacted]

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Roller, w/o inner ring, pressed cage, non-std.	Front & back bridge	25	52	15		
Roller, w/o flanges outer ring, solid brass cage	Front bridge	35	72	17		
Roller, tapered, no inner ring	Steer gear	33	49.2	11		Cones less IR
[illegible] tapered roller brg.	Steer gear	33.8	58	17		Cup
[illegible], cup outer [illegible] inner ring	Front universal joint	22	35	20.5		Torr. style (?)

25

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Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

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Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

TABLE XIII

YAL 200 [illegible] YAL 27

This 200 series consists of [illegible] and 12-ton trucks with several [illegible] of drive-axles. Only a few thousand of each produced.

25X1B

[redacted]

TYPE OF BEARING	BEARING APPLICATION In EQUIPMENT	DIMENSIONS MM BORE	O.D.	WIDTH	QUANTITY	REMARKS
Ball, one shield, single row	Transm. box & ventilator	20	52	15		
Ball, groove for locking on outer ring	" " "	55	150	28		
" " " "	" " "	45	140	33		
", felt seals both sides	Drive shaft	55	100	71/27		
"	Ventilator	20	52	15		
"	Regulator	12	37	12		
"	"	10	30	9		
"	Cylinder head?	12	32	10		
"	Supercharger? Fan?	25	52	15		
", with groove for locking on outer ring	Transm. box	45	120	29		
"	Compressor	35	72	17		
" thrust, in housing	Coupling	55	90	23		
", grooved, non-std, filling solid brass cage	Rear bridge	90	160	30		

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5
CONFIDENTIAL

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Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

TABLE XIII

AZ and MAZ 205 (CONTINUED)

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Ball, thrust, in housing	Front bridge	50	80.5	22.8		
" " spec.lt.series	Regulator	15	28	9		
",spec.w/one-pc rings double row thrust	Supercharger? Fan?	25	52	20.6		
" double w/2 seals	Water pump	16	30	40		
Roller,2 flanges outer ring,no inner ring, solid brass cage	Transm box		90	23		25X1B
Roller, no rings	Transm box	32	52.1	49		
",conical non-std	Rear bridge	60	120	46		
" " "	" "	65	150	54		
" "	Wheel [illegible]	90	160	50		
" "	" "	65	140	51.5		
" "	" "	50	110	42.5		
" "	Steer wheel	35	80	23		
" "	" "	30	72	21		
Needle,w/one pressed outer ring	Regulator	12	17	12		
" " "	Steer wheel	45	55	38		
" cup outer ring, no inner ring	[illegible]	[illegible]	50	28.6		

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Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5
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TABLE XIV

M 72 MOTORCYCLE

Not further identified

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Ball	Trans. rear main cup & shaft brg	20	47	13.5	1	
Ball	Trans. front main shaft	35	72	17	1	
Ball, self aligning	Countershaft brg	30	62	16	2	
	Pilot brg shaft & plug	6.3	22		1	
	Crankshaft	35	71.5	17.5	1	
	Front pinion brg	20	51.5	22	1	
	Flange brg	35	72	17	1	
	Rear generator brg	12	32-	10	1	
	Front generator brg	8	22	7	2	
Ball, angular contact	Univ. joint brg	10	19	9	4	
	Steering column brg	34	51	12.1	2	
	Wheel brgs	20	47	14	4	

28

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5
CONFIDENTIAL

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TABLE XV

Model 1615, 12" Engine Lathe

Similar to U. S. Le Blond Rear-drive engine lathe

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Ball	Headstock				1	
Ball	Headstock				1	
Ball	Headstock	20	47	14	1	
Ball	Headstock	25	52	15	2	
Ball	Headstock	25	52	15	1	
Ball	Headstock	25	62	17	2	
Roller, tapered, P class, superfinish	Headstock	70	120	45	1	
Ball, thrust	Headstock	20	35	10	1	
Ball	Feed rod	20	47	14	1	
Ball	Lead screw	20	47	14	1	
Ball	Feed gear	15	35	11	1	
Ball, thrust						
Ball		50	90	20	1	

25X1B

Note: This is only a partial list because the sample machine is incomplete—possibly about 6 bearings are missing.

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

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TABLE XVI

MODEL 1A62 16" ENGINE LATHE

Similar to U.S. heavy duty Lodge and Shipley 16" lathe

25X1B

[redacted]

BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY
Headstock				1
Headstock	90	120	22	1
	80	105	19	1
	75	110	27	1
				2
	40	90	25.5	1
	25	62	18.5	2
	70	125	33.5	1
	35	72	17	1
	65	120	23	2
Drive Pulley				1
Tail stock				1
Gear Quadrant	25	52	15	1
?	15	35	11	2
?	35	80	21	
?	35	72	17	1
?	25	62	16.5	1

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

CONFIDENTIAL

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

TABLE XVI (CONTINUED)

MODEL 1A62 16" ENGINE LATHE

Similar to U.S. heavy duty Lodge and Shipley 16" lathe

25X1B

[redacted]

KIND OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
Roller, tapered	?	60	80	20	1	
Roller, tapered		65	80	23	1	
Roller, thrust					1	Made in Sweden

Note: This is only a partial list because the sample machine is incomplete. Probably only 5 or 6 bearings are missing.

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

TABLE XVII

Model 1336 H Turret Lathe

1½" bar capacity (Pittler type); no U. S. equivalent;
same capacity as Warner-Swasey #3 ram type turret lathe

25X1B

TYPE OF BEARING	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE	O.D.	WIDTH	QUANTITY	REMARKS
[redacted]	Headstock	60	110	22	1	
	Headstock	25	52	15	1	
	Headstock	15	35	11	1	
	Headstock	25	62	17	1	
	Headstock	25	62	17	1	
	Headstock	50	90	20	1	
	Headstock	60	110	22	1	
	Headstock	25	80	21	1	
	Headstock				1	Made in Italy
	Headstock	70	125	33.5	1	
	Double Pulley	50	90	20	1	

Note: This is only a partial list because the sample machine is incomplete--possibly about 6 bearings are missing.

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Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

TABLE XVIII

EXCAVATOR TYPE 2

A power excavator that can be fitted with a shovel or a pair of long jaws for clearing dense underwater growth in swamps previous to peat removal

25X1B

TYPE OF BEARING	[redacted]	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS BORE		WIDTH	QUANTITY	REMARKS
Ball		Not given	35	5	21	3	
Ball		"	40	9	23	3	
Ball		"	50	110	35	2	
Ball		"	50	90	20	8	
Ball		"	45	120	29	4	
Ball		"	50	130	31	2	
Ball, thrust		"	60	100	27	2	
Ball, "		"	55	90	25	2	
Ball		"	80	140	38	4	
Roller, tapered		"	90	160	43	8	
Roller "		"	60	130	34	4	

Approved For Release 2000/05/15 : CIA-RDP79T01049A001000010004-5

25X1A
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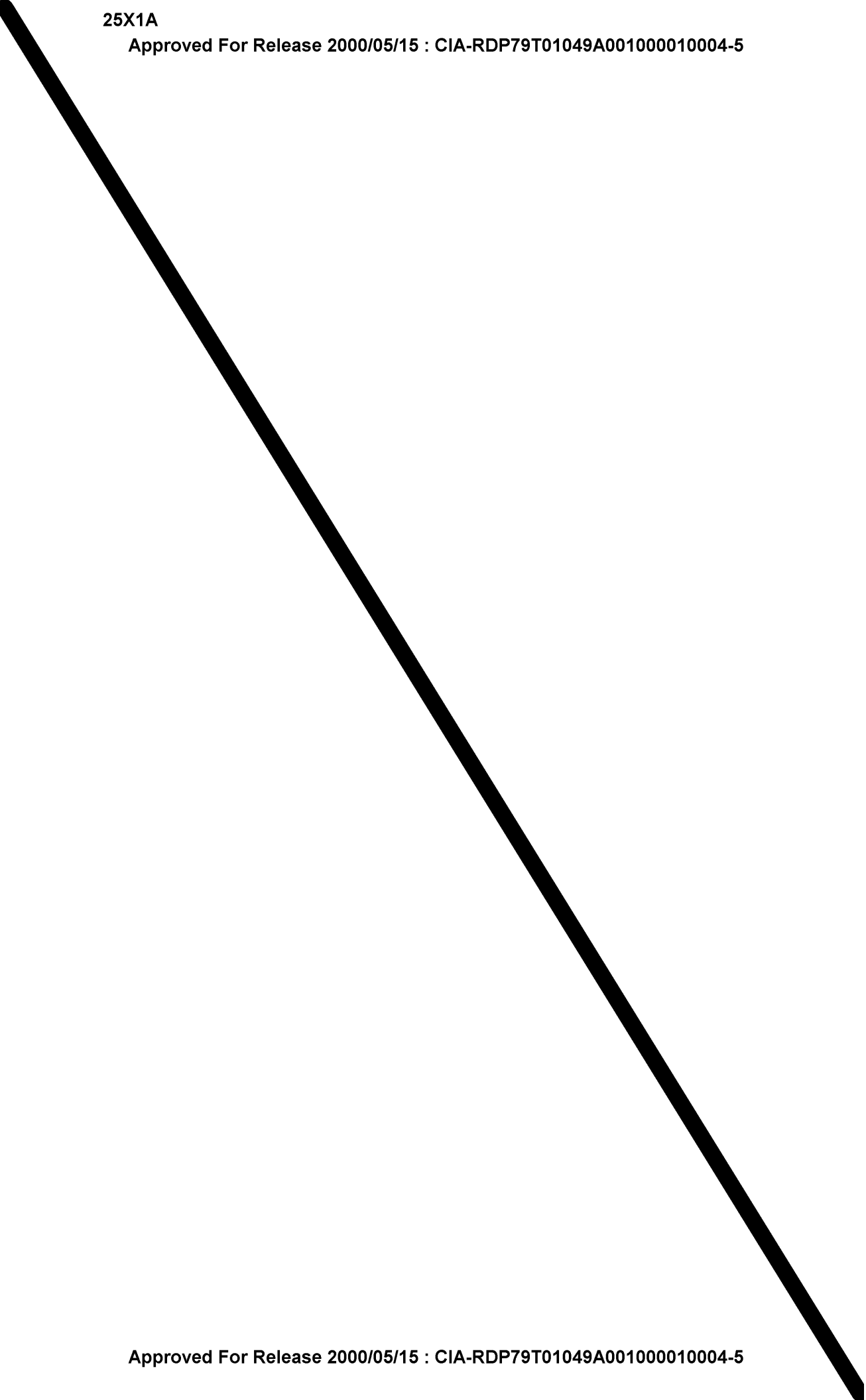

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